

ENVIRONMENTAL ASSESSMENT

Case File No. AA-85331

AK-040-04-EA-010

Applicant: Placer Dome, U.S. Inc., Anchorage Alaska

Type of
Action: Land Use Permit for Drilling in Donlin Creek Prospect

Location: Sections 5, 6, 7, 8, 17, and 18, T. 22 N., R. 48 W.
Sections 1, 12, and 13, T. 22 N., R. 49 W.
Seward Meridian

U.S.G.S. 1:63,000 Quads – Iditarod A-5 and Sleetmute D-6

Prepared By: Natalie M. Cooper, Realty Specialist

Preparing
Office: Bureau of Land Management
Anchorage Field Office
6881 Abbott Loop Road
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Date: December 17, 2003

I. INTRODUCTION

Placer Dome U.S. Inc. received a permit to drill on public lands, however, Placer Dome has requested an amendment to the permit to allow for larger drill pads and more miles of road. An EA was written to cover the original permit; the document was AK-040-04-EA-004.

A. Purpose and Need for the Proposed Action:

Placer Dome U.S. Inc. is requesting to drill in the Donlin Creek Prospect because they are analyzing potential areas to place tailings from the proposed Donlin Creek Gold Mine. If the lands are found to be suitable, the land could potentially be utilized to place tailings and waste rock.

B. Conformance With Land Use Plan:

The Proposed Action has been reviewed and found to be in compliance with the Southwest Planning Area Management Framework Plan (MFP), signed November 1981. The Southwest MFP Minerals Objective, M-2, states the BLM will “provide opportunities for development of locatable minerals throughout the planning area.”

II. PROPOSED ACTION AND ALTERNATIVE

A. Proposed Action:

Placer Dome U.S. Inc. proposes to drill on public lands in the Donlin Creek Prospect; Sections 5, 6, 7, 8, 17, and 18, T. 22 N., R. 48 W. and Sections 1, 12, and 13, T. 22 N., R. 49 W. of the Seward Meridian. A portion of the project overlaps onto adjacent Calista owned lands. Four (4) monitoring wells and up to thirty (30) condemnation holes will be drilled on public lands. The purpose of the four monitoring wells is for accurate assessment of the water flow and quality and for ongoing monitoring. These aspects of the groundwater may influence designs of possible mining facilities. The purpose of the condemnation holes is to assist in locating potential sites for mine waste rock, tailing deposition, and construction of mill and maintenance facilities related to the analysis of a mine operation on adjacent private lands. It is desired to place such elements over areas of low mineral potential, that way, if in the future new mining locations were desired, the operation would not have to remove tailings and buildings to get to the minerals. See Exhibit A for the specific locations of the monitoring wells and the outlined areas for the condemnation holes.

Prior to drilling, Placer Dome U.S. Inc. would perform impedance monitoring work to determine the location and numbers of the condemnation holes. This monitoring would require access by All-Terrain Vehicle (ATV), snow machine, or “snow cat” depending on snow cover. (The “snow cat” is a rubber and steel tracked vehicle less than 10 feet wide, weighing less than 10,000 pounds). Survey

lines, 1 meter (3.28 feet) wide, would be cleared of brush and trees. Approximately 16.33 miles of survey lines would be cleared, each line spaced $\frac{1}{4}$ mile from the other. Along these survey lines, 2-3 steel probes (18 inches long; $\frac{1}{2}$ to $\frac{3}{4}$ inches in diameter) would be driven into the ground at 150-300 foot intervals and then moved on down the survey line for additional testing, until all lines have been completed. Measurements taken from these probes would determine the location of condemnation holes. The impedance monitoring work is expected to take 16 days to complete. The layout of survey lines is shown in Exhibit B.

The diameter of the monitoring wells would be six inches; the depth could potentially be as deep as 1,000 feet, however, it is anticipated that the depths in the proposed areas would be 300-400 feet deep. The condemnation holes would vary in diameter and depth depending on the individual sites' allowances, but generally would be $2\frac{1}{2}$ to 4 inches and the depths approximately 200-300 feet deep. Each hole would be surrounded by a drill pad approximately 70 feet in diameter. The holes would be drilled with a mud drill. The mud drill cuttings would be collected into a portable container. These cuttings would be scattered over the surface of the drill pads, drill trails, and onto any adjacent tundra that would be sufficient to keep from creating any discernible mounds of cutting. For the condemnation holes, however, depending on the depth of the holes, some cutting may be left in the holes as well as spread. The cuttings would be spread to less than $1\frac{1}{2}$ inches deep.

The drill used would be a motorized tracked vehicle. The drill rig is 16 feet long with two 36 inch wide tracks. It is 7 foot 9 inches wide and 9 feet high. It weighs 28,660 pounds. The drill is accompanied by an air compressor, also on tracks. The compressor is 16 feet long with two 24 inch wide tracks. It is 7 foot 9 inches wide and 8 feet 4 inches high. It weighs 25,125 pounds. Both are self propelled. Both would be brought out to the camp by airplane. From the camp the vehicle would be driven across the terrain to the drill sites. A total of five trails, at approximately 2.8 miles each by 10 feet wide would be required for access by drilling equipment. This estimate is considering that the furthest possible location for a condemnation hole would be utilized. Three additional access routes necessary to service the entire survey may add up to 7 miles of 10 foot wide clearing. The tracks of the drill and the air compressor are constructed to operate without breaking the vegetative mat that they travel over. The drill and compressor would roll over vegetation and brush, but any trees encountered within the 10 foot width clearance would be cut down by chainsaw. The paths of the drill would follow the already cleared survey lines however, that may not always be the case, and a separate path would be cleared for the drill.

The vehicles may need to be fueled on site. Fuel would be brought in by ATV, snow machine, or snow cat and held in five gallon cans or barrels. It is anticipated the drilling would take less than a day to drill each site.

The impedance monitoring and drilling is proposed to take place between mid-November 2003 and March 2004 when the ground is frozen.

The use of the four monitoring wells and all season access trails would continue. Each capped well would contain poly vinyl chloride (PVC) well liners and a steel casing which would stick out three feet above ground. Between the PVC liner and steel casing a concrete grout would be placed from the surface to approximately 3.28 feet below the surface. Each well would contain an instrument with wire coming to the surface for periodic water level monitoring; each would be visited once every three months. The wells would be accessed by ATV, snow machine, or tracked snow cat. An access route to the four monitoring wells may coincide with the condemnation hole access routes. If the route is separate, five miles of 10 foot wide trail would be cleared. This periodic monitoring could become indefinite once Calista takes ownership, but if monitoring were to cease, the well casings and instruments would be removed and any outward evidence would be eliminated.

Total affected acreage for routes and drill sites, as described:

Feature	Dimensions		Acreage
Impedance Work (Survey Lines)	Total length: \approx 16.33 miles	Width: \approx 3.28 feet	6.5
Drill Rig Access Trails	Total length: \approx 14 miles	Width: \approx 10 feet	17.0
Additional Access Routes during drilling	Total length: \approx 7 miles	Width: \approx 10 feet	8.5
Drill Pads	Up to 34 drill pads at \approx 70 feet in diameter		3.0
Routes to Monitoring Wells	Total length: \approx 5 miles	Width: \approx 10 feet	6.1

Total: 41.1

No cut and fill activities are anticipated for any access routes.

The 30 condemnation holes would be properly plugged in accordance with Alaska Administrative Code, Title 18 Chapter 80 Well protection, source water protection, and well decommissioning, after initial exploration. The plugging procedure would depend on the type of formation (consolidated or unconsolidated) located at each hole. See Exhibit C for the Alaska

Administrative Code. No external casing or appearance of a drill site would remain at the condemnation holes.

Rehabilitation of access routes and drill pads is not anticipated since the vegetative mat is not expected to be cut. However, should accidental or unavoidable disturbance occur, the following seed mix would be planted by July 30, 2004. Rehabilitation efforts on the disturbed sites would continue until 80% growth of seeding has occurred.

Common Name	Latin Name	Pound per acre
Bering Hairgrass	<i>Deschampsia beeringensis</i>	42
Lt. Ryegrass	<i>Lolium multiflorum</i>	21
Red Fescue	<i>Festuca rubra</i>	42
Polargrass	<i>Arctagrostis latifolia</i>	140

A 0-45-0 fertilizer would be applied at 67 pounds/acre to encourage seeding.

- B. No Action Alternative:
Under the No Action Alternative, no permit would be issued to Placer Dome U.S. Inc. and BLM would continue to implement current management of these public lands.

III. AFFECTED ENVIRONMENT

- A. Critical Elements:
The following critical elements are either not present or would not be affected by the Proposed Action or the No Action Alternative:
- ACEC's
 - Air Quality
 - Cultural Resources
 - Environmental Justice
 - Farmlands, Prime/Unique
 - Floodplains
 - Invasive, Non-native Species
 - Native American Religious Concerns
 - Subsistence
 - T&E Species
 - Water Quality, Surface & Ground
 - Wild & Scenic Rivers
 - Wilderness

The following critical elements will be affected by the Proposed Action or the No Action Alternative:

1. Wastes, Hazardous/Solid:

Hazardous Wastes. The Proposed Action involves heavy reliance on motorized vehicles and machinery in an area which is essentially undisturbed by human activity. Use of motorized equipment/vehicles presents a hazard of spills of oil or other hazardous substances while traversing the land, conducting drilling, operating the wells/holes, and fueling/servicing the vehicles and equipment. Potential for releases includes small drips/leaks from vehicles/machinery, and larger releases caused by accidents during refueling. Potential pollutants include, but may not be limited only to: petroleum or synthetic lubrication and hydraulic oils contaminated with metals and/or solvents; gasoline and/or diesel fuel; antifreeze containing metals and/or oils; and battery acid and lead.

Solid Wastes. Non-hazardous solid wastes (NHSW) would be generated during implementation of the Proposed Action. Potential NHSW generated include, but may not be limited only to: cuttings and excess drilling mud generated by well installation and soil boring activities; household/industrial type trash; and human waste (sewage).

2. Wetlands/Riparian Zones:

The area of the Proposed Action includes approximately six miles of riparian area on two creeks. Approximately 3½ miles of Anaconda Creek and approximately 2½ miles of American Creek would be directly affected. Riparian areas consist of willow/alder/birch with moss lichen under story. This watershed is an anadromous fishery.

B. Land Status:

The Proposed Action is on public lands. Calista Corporation has submitted a waiver application to select these lands. The application requires Secretarial approval. Calista has indicated they would like conveyance of these lands first over other selections. As this would be a regional selection, both surface and subsurface would be conveyed to the Corporation at conveyance. BLM estimates the conveyance of these lands to the Corporation to occur in CY 2004. Calista Corporation has submitted a letter of concurrence for the Proposed Action by Placer Dome U.S. Inc. Calista Corporation owns the adjoining land.

C. Vegetation:

The Proposed Action would occur on slopes, ridge tops, riparian areas, floodplains, and wetlands. North slopes are covered with low shrubs or stunted black spruce forest and a ground cover of moss and lichens. Other slopes are dominated by white spruce, birch, alder and willow. The riparian areas support sedges, white spruce, birch, alder and willow. Ridge tops are dominated by alpine shrubs, lichens, grasses, and mosses.

D. Visual Resources:

The Southwest MFP Visual Resources Objective, VR-2, states the BLM would maintain the visual quality of the planning area and that development would be designed for minimum impact to visual resources and to reduce unnecessary surface disturbance.

The features of this area are very common to the physiographic region. The visual quality of this area is poor (due to heavy vegetation). Vistas, at least half-way up the hills surrounding creeks, give relief to the surrounding rolling hills and distant mountains. Placer Domes' current operations in Donlin Creek are easily visible from aircraft from several miles away. The Proposed Action approximately doubles the amount of trail network currently in place.

Utilizing BLM's Scenic Quality Inventory and Evaluation Chart, this area rates as a Class C.

E. Wildlife:

At this time, large mammal populations of moose and caribou are at historic lows on and adjacent to the proposed site. Moose occur in the areas associated with riparian willow shrubs and mixed forest. Predators such as wolves, black and brown bear, lynx and marten may frequent the area, but are highly mobile and would be encountered for short periods of time. Resident and migrant land birds nest and feed in shrub and forest habitats. There have been no wildlife surveys completed in this area to determine numbers or distribution in the area of the Proposed Action. Peregrine falcon, a recently delisted special status species, is known to breed throughout the Kuskokwim River corridor, particularly near the Village of Crooked Creek. The distribution, breeding densities and productivity of breeding peregrine falcons, has been surveyed in the region annually since 2000 on the Kuskokwim River. Falcon densities are unknown for the area within the Proposed Action, but potentially present in areas with rock outcroppings or cliffs.

F. Soils:

The exploration site, located in the Kuskokwim Highlands, is characterized by high rounded hills, long ridges, and deep sloping valleys. The foot slopes and north facing slopes in the exploration area are poorly drained, very gravelly and stony soils. The permafrost table is shallow. Soils are gray mottled silt loam to very gravelly and stony silt loam that is perennially frozen below depths of 10 to 24 inches.

The steep side slopes and those facing other than north are well drained and gravelly silt loam 20 to 40 inches deep. Soils have a thin Albic horizon and a dark reddish brown to grayish brown very gravelly silt loam.

The soils on the ridges above tree line consist of very gravelly loams or silt loams 20 to 40 inches deep over bedrock. Surface albic layers are about one inch thick and are underlain by dark yellowish brown gravelly silt loam to a depth of eight inches. These ridge lines do not hold enough moisture to form ice-rich permafrost. These soils are not suitable for agriculture or construction. (Exploratory Soil Survey of Alaska, USDA/SCS, February 1979.)

IV. ENVIRONMENTAL CONSEQUENCES

A. Impacts of the Proposed Action:

1. Critical Elements:

a. Subsistence:

The Proposed Action may impact subsistence species by loss of habitat and harvest. A loss of up to two moose per year may occur, because of decreased resources/habitat for moose. Depending on the ground water and potential contamination of aquifers and riparian and stream bank damage, subsistence fisheries may be impacted down stream.

b. Wastes Hazardous/Solid:

Release of hazardous and non-hazardous solid wastes would have a detrimental effect on the quality of the soils, vegetation, and water due to the inherent toxicity of the chemicals; unsanitary conditions created by human waste; and loss of aesthetic appearance. The toxic effects of releases to the environment are potentially both acute and chronic. If releases are not immediately and adequately cleaned-up, soils would remain contaminated, vegetation would be stunted and/or die and water toxicity could become fatal.

c. Wetlands/Riparian Zones:

The Proposed Action would involve the clearing of brush and trees to create survey lines and monitoring well access roads. The proposal would likely involve several stream crossings with heavy tracked drilling vehicles in excess of 25,000 lbs. and smaller vehicles such as snow cats and ATVs. Stream crossings with large and heavy vehicles, and numerous crossings with snow cats, snow machines or light, single passenger ATV's would have a detrimental effect on riparian vegetation, potential fish spawning habitat, and increase erosion of the riparian zone.

2. Vegetation:

Ground level vegetation would be disturbed by off-road vehicle (ORV) traffic. Drill pad construction and/or drill holes would remove vegetation in small areas. Small trees and shrubs would be cut and removed to establish lines of site in laying out the survey grid. These lines are likely to be visible from the air or from adjacent ridges.

3. Visual Resources:

The clearing of vegetation to provide for access by ATV's, drilling rig and compressor unit would result in long-term visual degradation. The drilling pad areas and drill cuttings would also contribute to this visual degradation. This area is commonly flown over by commuting aircraft and would be easily viewed.

The clearing of vegetation along survey lines for the impedance monitoring work would result in obvious lines cut through the vegetation. The mud drill cuttings, if not widely spread across the surface, could end up looking like large mud piles. The straight lines and mud piles could be observed from the air and visual quality of the land would be impacted.

4. Wildlife:

Approximately 42.33 miles of roads and access trails would be created with survey lines and drilling access and monitoring well access roads. These routes would provide improved access to the area for subsistence and sport hunting, and may further impact game populations in the area.

The Proposed Action would hinder recovery of moose and caribou populations by reducing available habitat, forage, and interrupt seasonal movement patterns. Fisheries impacts could occur if damage or contamination of riparian zones, surface streams or ground waters occur.

5. Soils:

Little to no soil erosion is expected to occur given the low impact equipment used for exploration activities.

B. Impacts of the No Action Alternative:

No impacts would result from the No Action Alternative.

C. Cumulative Impacts:

The Proposed Action is to determine possible tailing and waste rock sites for the proposed Donlin Creek Gold Mine. To make the determination whether the possibility is there or not, vegetative clearing and some ground disturbance would occur. In the future, as a result of the findings from this Proposed Action, the lands may be used to collect tailings and waste rock. In addition to the change in landscape from the tailings, ancillary facilities such as roads and maintenance buildings could be constructed on this land. The riparian valleys would be drastically changed.

There have been large areas of disturbance from mining throughout the area. This action will increase surface disturbance by 41.1 acres. This will add to the long term loss of vegetation and wildlife habitat.

D. Mitigation Measures:

1. No cutting of trees or tree limbs unless absolutely necessary.
2. Minimize the clearing on survey lines by merely limbing trees and brush to obtain the sight lines necessary for survey and limit clearing to the least extent possible. ATV's and snow machines can maneuver around trees instead of cutting clearings a meter wide. The timber in the area is woodland primarily and the tree spacing allows for going around trees for access. Impedance testing on steep sloped and/or in heavy vegetation may be more effective on foot rather than by ATV, and this option should be used as much as possible.
3. Survey lines could be mitigated by having them "broken up" with both additional cutting of the survey line to eliminate the linear appearance and by common planting of larger scale vegetation trees inside the survey line. This is a common practice used to blend in fire lines.
4. Upon determining the location of condemnation drill sites, an access plan would be developed and approved by the authorized officer to minimize the 10 foot wide trail clearing for access to the condemnation holes and the all season access to water monitoring wells. Maneuvering heavy

equipment to avoid clearing trees and minimize straight line visual impacts is desirable. All season access activity would require fire arresters on vehicle exhaust systems and fire fighting equipment (shovel, bucket, and ax) to be present during fire seasons.

5. Drill pad clearing would be kept to the least amount possible on level sites slopes no steeper than 30%.
6. No blading of vegetation or soil would be allowed except in cut and fill activities, where necessary for drill pads on steep slopes.
7. Main access routes to and from the exploration sites would be established the shortest distance possible.
8. Access roads would be located on ridge tops or south facing slopes where possible, to avoid permafrost prone areas. ATV traffic would occur only when necessary; using the same trails as much as possible and avoiding shortcuts.
9. Stream crossings with drilling equipment and other vehicles, including ATV's, requires a state permit. Stream crossings should be avoided with all vehicles, however, if a stream must be crossed with vehicles, soils in the riparian zone must be frozen to a depth of at least six inches, and the ground covered with at least one foot of compacted snow. Within the stream, a snow bridge must be constructed to support the weight of the vehicle and keep it out of and above the stream bottom. Streams should not be crossed in summer months or when the ground has less than six inches of frost and one foot of snow cover.
10. For the entire project area, BLM would require the ground to be frozen deep enough to support all vehicles (heavy and light). Heavy equipment travel on slopes over 30% is prohibited.
11. To avoid increased damage to soil and the vegetative mat, tracked vehicles would make gradual turns instead of locking one track and spinning the vehicle around in one spot.
12. Access roads would be closed for all purposes other than this project. Contractors and employees of the mining operation would not be allowed to sport or subsistence hunt in the area, or access the areas for hunting.

13. Placer Dome U.S. Inc. should prepare and follow a spill prevention and response plan, to include a Spill Prevention, Control, and Countermeasure Plan (SPCCP), if required. Each vehicle traversing the area should carry an adequate spill response kit, and each work site should also have appropriate spill response kits on hand. Workers should be trained to the worker protection standards described in 29 CFR 1910.120(q), be trained to properly maintain the equipment to prevent spills from happening to the maximum extent possible, and to properly cleanup spills that do accidentally occur. Human waste should be either bagged and backhauled to a proper disposal point, or pit privies established in accordance with State of Alaska regulations should be constructed on-site. Trash/refuse should be collected and backhauled to a proper disposal point.
14. Where feasible, drill cuttings shall be placed back into the condemnation holes. Where not feasible for the condemnation holes and for the monitoring wells, the cutting will be spread along the drill path, access roads, and adjacent areas to no more than 1½ inches in depth.
15. Any cut brush shall be scattered across the area.
16. A surface reclamation plan would be developed and approved by the authorized officer to insure minimum disturbance and clearing, erosion, potential riparian damage, and access/trail closure to public use to maintain habitat effectiveness. A reclamation plan needs to address drill pad cut and fill, recontouring and topsoil stockpiling as appropriate. Rehabilitation with grasses presents the creation of a fire hazard. Areas over 0.1 acres or that present an erosion hazard should be reseeded, other sites should be allowed to naturally revegetate to the degree possible.
17. BLM would evaluate the disturbance from the action before recommending a seed mixture. BLM may decide seeding is not required.
18. In order to minimize visual impact to this area, large scale vegetation replacement (> 6ft. tall) would be applied to trails not needed for the long term.

V. CONSULTATION AND COORDINATION

A. List of Preparers:

Natalie M. Cooper - Realty Specialist, Lead Preparer
Jeff Denton - Subsistence/Wildlife Biologist
Larry Beck - Environmental Protection Specialist
Donna Redding - Archaeologist

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Bruce Seppi - Wildlife Biologist
Jake Schlapfer - Recreation Specialist